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ORIGINAL ARTICLES.

A CASE OF LIPODERMOID OF THE BULBAR CONJUNCTIVA WITH ACCOMPANYING CONGENITAL DEFECTS.

By H. D. LAMB, M.D.,
AND W. F. HARDY, M.D.,
ST. LOUIS, MO.

T. J., a white male, 10 years of age, was brought by his mother to secure the removal of a very glaring and unsightly appearance due to a tumor on the left eye.

This eye was seen on its temporal side to present a large, flat, triangular growth. This extended from 3 mm. inward from the periphery of the cornea outwards to the outer angle of the eyelids and downward to the outer third of the lower fornix; backward hugging the globe and ever widening, the tumor extended to beyond the equator of the globe, where it could no longer be followed.

The color of the growth was reddish, the consistency rather soft; the overlying conjunctiva was quite adherent, and the mass but little movable over the underlying eyeball.

The outer angle of the same eye was filled in with a band of tissue (probably an amniotic band) of the same color as the skin, which extended backwards over the malar region and forwards across the external canthus to a short distance between the edges of the eyelids, which it thus connected.

The iris of the left eye had a coloboma inward; also, as a remnant of the pupillary membrane, a fine thread passed from below and inwards to up and outwards across the pupil.

Ophthalmoscopic findings in both eyes were negative.

Measuring the refraction of the two eyes gave the following result:

O.D. +1.00 D. sph. +2.25 D. cyl. ax. 15° V 20/24.

O.S. +5.00 D. sph. +1.75 D. cyl. ax: 15° V=counts fingers at 5 feet.

The movements of the eyeballs were good.

In the left temporal region there was a defect in the bone over which was a soft mass beneath the skin. The skin over the opening was redder than that surrounding it. No pulsation could be obtained over the defect.

The left testicle had not descended and could not be felt in the inguinal canal. There was a moderate hypospadias and two large fat-pads extended upward and backward from the symphysis pubis over the anterior abdominal wall.

The boy was very backward in school and reported to be so unruly as to be refused any continued stay at a children's home.

The removal of the growth was performed by Dr. John Green under local anaesthesia with 1 per cent. novocaine. His report follows:

"The tip of the growth firmly adherent to the cornea was carefully dissected off, disclosing a scar-like area, level with the corneal surface. The main part of the tumor adherent to the sclera was freed by scissors and blunt dissection back to the equator of the globe, and there excised. The growth extended into the orbit, but it was deemed inadvisable to continue the dissection farther.

The overlying conjunctiva was next split and dissected free from the mass to which it was quite closely adherent. A few sutures brought together the conjunctival edges.

There was a fairly free hæmorrhage, which closed immediately on tying the conjunctival vessels.

The wound healed promptly with a slight adhesion between conjunctiva and denuded cornea."

Microscopical Findings.—The corneal portion of the growth was composed of rather dense fibrous tissue containing many small capillaries. Its covering epithelium resembled epidermis, having many well-developed papillæ; but practically no horny layer.

The large scleral part of the growth was much looser in structure. It consisted of a very vascular and very loose fibrous tissue, the meshes of which were crowded with red corpuscles. At one side of the sections (the growth was cut vertically across from

the corneal end toward the equatorial part) occurred the fat cells. These in small quantity among the fibrous tissue were massed for the most part beyond the fibrous tissue.

The other side (the top or bottom of the growth) showed much necrotic fibrous tissue containing several well-preserved bloodvessels and a great deal of hæmorrhage. Needless to say the hæmorrhage which appeared in so much of the sections originated at the time of the removal of the tumor.

A small lacrimal gland with several ducts of large lumen were seen.

Also among the fat tissue there was made out a short length of a nerve, whose fibers appeared very broken, irregular and twisted.

There were no cilia, nor could any hair follicles be seen microscopically.

The amount of fat tissue was greatly increased in the sections from the posterior part of the growth.

The chief reason for reporting the case lies in the accompanying congenital anomalies present in the eye, the side of the head, and the genitalia.

Coloboma of the iris quite commonly accompanies dermoids and lipo-dermoids, although remnants of pupillary membrane do not so frequently.

The defect in the skull is undoubtedly an antero-lateral fontanelle due to an unclosed pterion. A compensatory protection was formed by the fibrous thickening over the opening.

Dermoid growths have been observed with much the greater frequency in females. Our case presenting hypospadias, undescended testicle, and two fat-pads over the symphysis and abdomen, strongly resembled an hermaphrodite.

Thus all the accompanying congenital changes in our case appear to be due to localized arrests of development, although the presence of the lipo-dermoid cannot be so explained.

The overlying conjunctiva in being adherent accorded with the rule of Lagrange, who stated that whereas in lipomata in this situation the conjunctiva is freely movable over them, in lipodermoids it is not.

In our case there were no hairs, which is in accordance with the expressions of several writers that hairs do not develop on these growths before puberty.

The epithelium over the tip of the growth resembled the skin a little, although the eyelids completely closed over it. The con-

junctiva over the remainder of the growth was used for flaps and this prevented the study of more of the epithelium.

The position of this growth in the lower outer quadrant is uncommon for dermoids or lipo-dermoids, although in one eye of a 15 year old boy, reported by Atken,¹ in both eyes of a girl of 10 years, reported by Wicherkiewicz,² and in both eyes of Stoll's³ case, a lady 33 years old, the lipo-dermoid in the lower outer quadrant extended on to the cornea as in our case.

Of the deep extension backward of the growth, as in this case, I could find no similar account in the literature. Here the lipoid tissue of the growth undoubtedly became continuous with the fat in the orbit.

X-ray pictures were made of the skull showing the bony defect.

1. Brit. Med. Jour.
2. Centralbl. f. prakt. Augenheilk.
3. Amer. Jour. of Ophthalmology, Jan., 1913.

INTRODUCTION TO OCULAR THERAPEUTICS.*

BY DR. A. DARIER.

ON THE IMPORTANCE OF A PRECISE ÆTIOLOGICAL DIAGNOSIS.

In order to employ a successful therapeutics, it is before everything else necessary that the diagnosis of the affection to be treated be made as exact, as scientific and as soon as possible.

The means at the disposal of the clinician at this day are numerous. He may base his action on:

1. The clinical diagnosis, the most employed, the most important, the one which is established by a judicious study of all of the patient's symptoms and of all physical signs, general as well as local, perceived by our senses or registered by special instruments, as the ophthalmoscope, ophthalmometer, tonometer, campimeter, plessimeter, stethoscope, sphymograph, the thermometer, radiograph, etc.
2. The anatomopathologic, microscopic, bacteriologic diagnosis; the examination of secretions from a chemical and bacteri-

*An extract from the "Compendium et Répertoire de Thérapeutique oculaire," which will soon be published.

La Clinique Ophthalmologique, July, 1916.

ological standpoint; the examination of pieces of tissue obtained by cutting or by scraping, etc.; the finding of the gonococcus, the tuberculosis bacillus, the spirochæte pallida, etc.

3. The experimental diagnosis, which is obtained in trying to produce in animals which are capable of taking it, the disease found (tuberculosis in the rabbit or guinea-pig, syphilis in the monkey, etc.).

4. The sero-diagnosis, that is by all trials to provoke a biologic reaction by means of vaccins and sera of immunized animals, or by attenuated microbic cultures (tuberculin reaction by hypodermic injections, by application to a cutaneous wound [anti-reaction of von Pirquet], or to the ocular conjunctiva [ophthalmoreaction of Wolff-Eisner, or Calmette]; serodiagnosis of syphilis according to Wassermann, etc.).

5. Finally, the therapeutic diagnosis as old as the clinical diagnosis (*naturam morborum curationes ostendunt*).

I. As regards the clinical diagnosis in general, we refer the reader to the great treatises on ocular pathology; but before advising therapeutic rules in every affection we shall give the principal elements of differential diagnosis.

One point which has not sufficiently attracted the notice of clinicians is the relation which often exists between dental lesions and certain ocular affections.

In the presence of any ocular infection, iritis, iridochoroiditis, optic neuritis, etc., the clinician should never fail to examine whether the patient's teeth are in good condition, and especially whether there is no radiculitis, no fistula, no alveo-dental osteoperiostitis, which by direct propagation or by reflex action might provoke ocular affections which might be prevented.

Since the remarkable works of Hutchinson concerning the heredo-specific triad, Hutchinson's teeth are universally recognized as the most characteristic stigma of hereditary syphilis.

This is so certain that every clinician who knows these teeth well can, as soon as the patient opens the mouth, transfer further investigations to the syphilis of the parents; he can even forestall their answers and draw the attention of the patient or his parents to conditions which they have not yet recognized. He may, and that is very important, save them from having to make painful statements, and if they do not as yet know the origin of their disease, allow them to remain in ignorance. He may even foresee within a shorter or longer period, the apparition of a parenchymatous keratitis, of a choroiditis, or a more or less marked or late deafness and all the other specific sequels.

Nothing inspires more confidence in the clients than this foresight of the physician. A study of the different congenital alterations of the teeth which I have pursued under the direction of J. Hutchinson himself has brought me to the following conclusions which I consider of the highest clinical and diagnostic importance. Hutchinson's teeth are almost infallibly due to hereditary syphilis, and if we carefully observe the teeth of any suspected patient we will see that if the incisors do not in all hereditary syphilitics show the typical notch, these teeth are smaller and set wider apart than in the norm; they often do not stand straight. The canines in certain cases can be the only teeth affected, in other cases the first permanent big molar shows the stigmata which Hutchinson has so well described on the front teeth. I made these observations in 1890, and when in 1904 I showed the moulages to Sir J. Hutchinson himself, he confessed that he had not attached much importance to lesions of the molars and had attributed these lesions to the influence of the treatment with mercury (mercurial teeth). It is, of course, easily understood that the teeth to be affected by syphilis will be those which ossify at the period when this disease exerts its deleterious influence. This explains why the first dentition is rarely affected, for all milk teeth go through their dentification in from the 4th to the 5th month of intrauterine life; if syphilis affects a foetus at the period it will kill it and cause an abortion. On the other hand, if the syphilis manifests itself in the last weeks of intrauterine life only it will interfere with the only tooth which assumes its hood of enamel at this time! This is the first big permanent tricuspid molar.

The observation of this fact is most interesting and with a child of twelve to fifteen years having as the only stigmata those affecting this tooth we have a right to believe that the syphilitic infection took place in the last month before birth, and we may ask the mother if not at that period a specific treatment was the cause of arresting the infectious process. Indeed, if the syphilis continues its evolution during the first month of life, the median incisor will be affected. If the other two incisors are also affected the syphilis has extended its deleterious action beyond the second month of life. On the other hand, if all the incisors and the first big molars are intact, while the canines alone show the stigmata we shall describe, we have a right to assume that the hereditary syphilis did not become manifest until 4 or 5 months after birth.

From these facts it is easily understood that the practitioner can gain much from them to guide his interrogations, his diagnosis, his prognosis, etc.

Neither must we forget the important fact that in subjects with hereditary syphilis all processes of evolution show a marked retardation and we must count with this; thus, the dentification of the canines which normally occurs in the first or second month after birth will come on later in the syphilitic.

It is well known that these children get their teeth much later than other children. In these dentification takes place from the 6th to the 8th month, while in the tainted children it takes place at the end of the first year only, sometimes even near two and even four years only.

The same holds good for the development of the maxillary bones which are so often malformed (vaulted palate, asymmetry, imperfect opposition of the two maxillæ, etc.). The bones of the skull, also, are disturbed in their development, thus causing the well known face with sunken nasal bones, asymmetric frontal protuberances, etc.

A more intrinsic study of these teeth can be made by consulting the many illustrations which I have published (*Leçons de thérapeutique oculaire*, 2nd edition, p. 332).

In order to study the dental stigmata well they must be observed in the young individuals. About at the 10th or 12th year the first permanent big molar appears (the milk teeth do not here enter into our consideration) and at this period these particularities can be well observed. A few years later caries has destroyed them on account of the insufficient covering with enamel. About the same time the central incisors come out, while the canines do not show until one or several years later.

Other organic lesions may certainly also influence the dentition, yet they must act at the time of the ossification of the dental follicle; thus the first dentition will be especially influenced by diseases of the mother during her pregnancy. Grave children's diseases coming on in the first weeks of life, serious infantile diarrhoea, athrepsia, convulsions, etc., may retard dentition, but the dental malformations thus produced are not regular; measles, scarlet fever and diphtheria are hardly ever observed in such small children. However, the parents should be asked regarding this point.

II. About the anatomo-pathological and microscopical diagnosis, all that is necessary to know in order to establish an exact

diagnosis in diseases of the conjunctiva and ulcers of the cornea can be found in the works on microscopical technique; an examination of smears of the secretions will give a bacteriological diagnosis.

For years the gonococcus of Neisser has cleared up the diagnosis of conjunctivitis. To-day, thanks to the discovery of the Koch-Weeks bacillus, the diplobacillus of Morax-Axenfeld, etc., even the prognosis of these affections has made a most interesting step forward; the study of the pneumococcus is still more important, for we know now that it can provoke not only the coming on of a very alarming form of conjunctivitis, but such a conjunctivitis in general develops very rapidly and heals quite suddenly, reminding one of the crisis in a pneumonia (it is therefore quite necessary to differentiate between this microbe and the gonococcus). It is the most frequent cause of corneal ulcers, of grave post-operative infections and of many cases of panophthalmitis. The demonstration of the presence of the pneumococcus will permit us to direct against this infectious agent a specific chemical therapy (optochin, a specific bacteriotrop for the pneumococcus).

Diphtheritic infection, the clinical evolution of which is very well characterized by the pseudomembranes, can now be very precisely diagnosed by the Loeffler bacillus. The therapy of these infections has been altogether changed by the researches of Pasteur, Roux, Behring and Kitasato. We can say to-day that contrary to former times ocular diphtheria, if taken in time, is quickly curable; also, in all affections in which a diphtheritic infection is simply suspected, we must not wait for the result of a bacteriological examination in order to administer the serum, for the antidiphtheritic serum can not only do no harm, but it gives to the organism a supply of antibodies of a general paraspecific defense which in itself is capable to bring the disease to a cure.

The bacillus of Koch is hard to find in ocular affections, the cases of tubercular conjunctivitis are rather rare, and in tubercular iritis it is not just the right thing to make a corneal puncture in order to get some material for examination; it is, however, no less true that the presence of Koch's bacillus in a specimen could give a most valuable diagnostic sign and would corroborate the tubercular reaction.

In the diagnosis of syphilis the search for the spirochæte of Schaudinn will be of the greatest service, especially in the begin-

ning when there is a question of the specific nature of some ulcer, in case the serodiagnosis has not been able to furnish us with positive information.

Herewith a procedure, employed for the practical search of the spirochæte or *trepanoma pallidum*.

In order to succeed we must examine patients who have undergone no treatment whatever, neither by mercury nor arsenic nor iodide. The suspicious tissue is cleansed carefully with a tampon of cotton soaked in ether or petroleum, then it is scraped with a glass slide until some blood or a mixture of serum and blood has been lifted on the edge of the slide. The presence of blood is absolutely necessary. Sometimes the surgeons have found spirochætæ in healed indurated chancres when penetrating with a fine scalpel to the depth of half a centimetre when the superficial layers showed nothing. The spirochæte is found especially in the periphery of the mucous patches of chancres.

The serum and blood mixture obtained on the edge of the glass slide is spread out on a microscopic slide and carefully freed from fat by alcohol-ether. It is fixed by passing three times through the flame and stained by the rapid process of Rona-Preis (distilled water 10 cc., Giemsa solution 10 to 15 drops).

This coloring solution is poured 4 or 5 times over the object slide and warmed slightly every time. With the immersion lens the spirochæte is looked for, the specimen having been mounted in cedar oil; in order to avoid heating the specimen too much it is well to draw a line across the slide and one-half centimetre from its end with a fat pencil; when it gets too hot the pencil line comes off.

In order to get the spirochæte alive a drop of physiologic salt solution is put on the well cleaned slide. A drop of serum and blood obtained as described above is taken with a platinum loop and mixed with the physiological salt solution. The whole is now covered with a cover glass, taking care that no air bubble is enclosed and sealed with paraffine. Arning and Glein have been able to convince themselves, as Hoffmann has also seen, that in such specimens kept in the dark at the temperature of the room, the spirochætæ may remain alive for weeks. The spirochætæ are best examined in the dark field with the new instruments which replace the ultramicroscope.

When these authors sought for the spirochætæ in sections they used the Levaditi method. The following results were obtained.

Primary lesions examined 140, positive results 136; secondary lesions examined 247, positive results 245.

In 32 of the cases examined a decided clinical diagnosis was impossible; the finding of the spirochæte alone permitted the diagnosis of syphilis and the future proved it.

In another 18 doubtful cases the absence of the spirochæte led to the diagnosis of soft chancre. Yet, twice the appearance of secondary lesions showed that there had been syphilis.

These brilliant results show of what service in the practice a simple and rapid technique can be in the search for the spirochæte of Schaudinn. Cases of ocular chancre are rare, but their diagnosis is of such grave importance that nothing must be neglected which can help to establish it in an irrefutable manner.

Mr. Milian has examined 27 chancres the diagnosis of which was difficult and almost impossible with the ultramicroscope. Of these 6 were soft chancres, and even without staining the bacillus of Ducrey was found in motion. In the remaining 21 which were of a syphilitic nature, the treponema was positively found 19 times. Yet, the ultramicroscope can detect syphilis in the smallest buccal erosion. This is, therefore, a rapid and simple method, infinitely superior to the search for the treponema by staining.

III. Concerning experimental diagnosis we will say only that for the diagnosis of certain superficial eye lesions it will be possible by inoculations into the cornea or anterior chamber of the rabbit to reproduce lesions which may enlighten us as to the origin of the affection. Sometimes we may find in such inoculations the spirochæte or the bacillus of Koch which we were unable to find in the primary lesions.

In iritis of doubtful origin it has been recommended to get a few drops of aqueous humor by aspirating them with an aseptic syringe and to inject them into the anterior chamber of a guinea pig or a rabbit. By this method it may be possible to make the diagnosis of tuberculosis (Gourfein).

We will presently see that we have other more practical and less dangerous means to make the diagnosis of tuberculosis, for it is pretty difficult to persuade a patient to permit a puncture of the interior chamber for a diagnosis alone. On the other hand, every time that we may think that the injection of air into the anterior chamber might have a favorable therapeutic action, the withdrawn humor aqueous should be used to establish an experimental diagnosis by injecting it into the anterior chamber

of an animal and by spreading a drop of the liquid on a slide in order to obtain at the same time a microscopic diagnosis.

The transmission of the spirochæte of Schaudinn may, also, be made to the cornea of a rabbit or guinea-pig (a new very important fact), because it is not easy to have monkeys at one's disposal and it will always be of practical diagnostic value to find the spirochæte in a culture on the cornea of one of these animals.

IV. The serodiagnosis is so modern a conquest and so full of promise that it is well to discuss this subject for a while.

Bordet and Gengou have found that every time a serum rich in bacterial antibodies, like the antityphic, the anticholeric or the antipestic serum, is brought together with the kind of microbe which has served for the production of these antibodies, two phenomena are produced. In the first place the antibody fixes itself on the body of the microbe and in rigorously specific manner; in the second place, and on only after this fixation, the same antibody absorbs the hæmolytic complement.

This fact may serve in the search of the most different antibodies in the fluids and tissues; it may also serve to detect the microbes or the microbic derivatives in the infected organs or in the culture media. But it has been most especially used in the diagnosis of syphilis. Following researches made in common with Neisser and Bruck, Wassermann has shown that the reaction of the deviation of the complement permits of detecting the anti-syphilitic antibodies and the antibodies derived from the *Treponema pallidum* in the fluids and tissues of man and monkeys affected with syphilis.

If we want to make sure whether an individual has or has not been subjected to syphilis we heat the serum to 58 degrees for a quarter of an hour (to destroy the complement) and mix it with a like volume of antigen extracted from a syphilitic liver. Then a minimal quantity of the serum of the guinea-pig rich in hæmolytic complement is added to the contents of the tubes and the whole kept at 38 degrees for two hours. After this time the hæmolytic amboceptor of the rabbit and sheep blood is poured into the same tubes. If the serum under examination really contains syphilitic antibodies the red blood corpuscles will not be dissolved, the blood retains its hæmoglobin. If, however, hæmolysis takes place in the tubes we conclude that the antibodies are absent in this serum.

Thanks to this tactic the complications of which disappear

with practice, a number of facts have been collected regarding the presence of antibodies and antigens in syphilitics.

Neither Wassermann and his co-laborers, nor the authors which have repeated their studies, have succeeded in finding the antibodies or the antigens of syphilis in healthy individuals, except in a few exceptionally rare cases.

On the other hand it has been possible in the great majority of human and experimental syphilis to detect, either in the blood or in the cerebrospinal fluid or in the tissues, the antigens and antibodies of syphilis.

From other observations of Wassermann and Neisser it is seen that the percentage of positive reactions was in florid syphilis 75.5, while in latent syphilis it reached 58.

The close relationship between syphilis and general paresis and tabes are too well known to enumerate here the arguments which have prompted the clinicians to classify these diseases among the meta- or parasyphilitic processes. These have been rendered even more close by the finding of the syphilitic antibodies in the cerebrospinal fluid of tabetic and general paralytics. This new and valuable diagnostic agent will aid in confirming the standpoint of Erb and Fournier concerning the syphilitic origin of tabes.

The percentage of positive cases reached 88.

What importance can the serodiagnosis of syphilis have for the clinicians? This importance is of the highest order, for the method of Bordet-Wassermann will, in many cases, solve problems which the clinic alone can elucidate with difficulty only. How many times does the clinical research, in spite of all perseverance, find only indefinite points as regards the specific antecedents in such cases in which certainty would be so valuable for the treatment! How often in practice do we feel the necessity of knowing whether the treatment has borne fruit, or to express it differently, whether a former syphilitic can be considered as sufficiently recovered from the infection to be able to marry! Finally, how often must we decide whether a wet nurse who denies all syphilitic antecedents can be trusted confidently with the baby given into her care! In spite of the still incomplete state of our knowledge of the syphilitic seroaction this reaction can help us to solve these questions.

In 93.7 per cent. of known ocular syphilis the reaction was positive.

In 42.1 per cent. of doubtful cases it was positive; in paren-

chymatous keratitis in 84 per cent.; in iritis in general in 38 per cent.; in cases probably with syphilis in 70 per cent.; in chorioretinitis in 26 per cent.; with probable syphilis in 60 per cent.; in cerebrospinal affections in 59 per cent.; in tabetic atrophy in 90 per cent.

We must not forget that a negative reaction does not weaken the diagnosis of syphilis which may be in a perfect state of rest. On the other hand, a positive reaction is one of the best proofs which we possess to-day of the syphilitic nature of the lesions observed.

We have had occasion, thanks to Dr. Levaditi, of the Pasteur Institute, to put the serodiagnosis of Bordet-Wassermann to the test in a great many cases in which the diagnosis of an ocular affection was clinically impossible. The facts thus furnished were of the greatest usefulness in the treatment and have certainly contributed in many cases to a rapid cure.

The luetin reaction of Noguchi can be of service in the diagnosis of syphilis, especially in the cases in which the Wassermann reaction was without result. But this element of diagnosis is not handy for everybody. In future it may be, perhaps, perfected in such a manner as to make it easier to use. In 39 affections of the eye suspected of syphilis, 23 gave a positive Wassermann and Noguchi reaction. In 10 Wassermann was positive, Noguchi negative; in 2 Noguchi was positive and Wassermann negative; in 4 both reactions were negative.

This reaction is obtained by injecting into the derma an extract from a culture of 5 or 6 different strains of treponema; thus a cutireaction is produced like the one of von Pirquet's in tuberculosis. Is it not really assuming a very great responsibility to play with a virus as dangerous as is that of syphilis?

The serodiagnosis resulting from the discovery of Bordet-Gengou concerning the deviation of the complement has, also, been used with success in the diagnosis of tuberculosis by Marmoreck, Besredka and others.

To this end at first 0.15 cc. of the patient's serum is mixed with 0.3 cc. of antitubercular serum with a drop of normal guinea-pig serum added in order to furnish the complement. The whole is kept at 56 degrees for an hour; then a very small quantity of rabbit's serum, hæmolytic for sheep's blood, and a little sheep's blood are added.

Another hour in the culture oven shows the presence or absence of the antigen, that is the tubercular toxin in the patient's

blood under examination. If this serum contains the toxin, this by the aid of its antibodies will fix the complement present and on account of this complement being lacking no hæmolysis will take place. The fluid will remain turbid.

When there is no such antigen toxin present the free complement will join the hæmolytic serum and hæmolysis will be produced, which is characterized by a clear fluid, the color of Bordeaux wine.

Of 600 patients whose blood was examined by this method the reaction agreed with the clinical diagnosis in 95 per cent.

This reaction is different from those furnished by tuberculin, first by its absolute innocuousness because it is made outside the body and then by indication gives not of the presence of the tubercle bacillus, but of an active tubercular process.

In conclusion, the serum reaction furnishes very valuable information: a negative serum reaction does not permit us to refute the idea of tuberculosis, but a positive serum reaction is an argument of great value in favor of the existence of tubercular lesions which are active to a certain degree.

The serum diagnosis based on the complement deviation may render great service, also, in a large number of other infections. This reaction permits us to determine the presence in the patient's blood of the toxins of the gonococcus, streptococcus, etc., but at present these reactions are very difficult to produce. Let us hope that the technique will soon be improved because this is a diagnostic means of the greatest importance and the most delicate precision.

Can we consider the local and general reaction provoked by the injection of tuberculin as an incontestable proof of tuberculosis? Let us admit it for the moment, let us try to give the prominent points of this interesting means of diagnostic technique.

If we inject about 0.001 (1 milligramme) of Koch's old tuberculin into the subcutaneous tissue of a patient suffering from iritis, a keratitis, or any other eye affection suspicious of tuberculosis, we observe more or less of a febrile reaction; proven by an elevation of temperature of 1, sometimes 2 centigrades (general reaction) with headache and stiffness; at the same time a marked hyperæmia appears around the point where the injection has been made with more or less pain (local reaction). Moreover: more or less lively reaction may be produced in the iris (focal reaction).

According to the degree of affection and especially to the in-

dividual power of resistance it may sometimes be necessary to make a second and even a third injection of a greater dose in order to produce the desired reaction.

The general reaction proves only that there is a tubercular focus somewhere in the organism. The focal reaction alone, when clear, can show that the ocular lesion is really of a tubercular nature. But this focal reaction is not without danger, especially in so delicate an organ as the eye.

The cutireaction of von Pirquet may also be tried with profit. For this it is sufficient to make cutaneous scarifications of pricks in any part of the body and to rub into the wounds a solution of tuberculin. Soon at the level of the incisions a redness will appear with a slight swelling as is observed with vaccines (Moro-Doganoff).

A method of cutireaction which is easier to perform and less disagreeable to the patient, is that of Lautier. The technique is extremely simple. Three drops of tuberculin 1:100 are dropped on a little cotton, just enough so that the three drops will completely saturate it and this is then applied to the outer surface of the arm after this has previously been energetically washed with ether; in order to facilitate the diffusion of the fluid and its prolonged contact with the epidermis the wad of cotton is covered with a piece of rubber tissue. The bandage is completed with some more cotton and several turns of a bandage so that the tuberculin remains securely in the same place for 48 hours. A similar control bandage with water is applied to the other arm.

When the time has elapsed the bandages are removed, and in tubercular children as well as adults we observe an hour after removal of the bandage at the point of contact of the tuberculin a small slightly copper colored erythemo-papular elevation, sharply defined from the healthy skin. Its outlines are raised above the neighboring tissues. The reaction may be strong, or medium, or feeble. In the latter case only a feeble slightly roughened redness is seen projecting somewhat. Mahé-Desportes in his thesis (Bordeaux, 1908) concluded: (1) Healthy individuals never show any cutireaction; (2) tuberculous subjects react most often and this cutireaction is parallel to the ophthalmoreaction, that is that a patient having shown a strong ophthalmoreaction also shows a strong cutireaction and vice versa. (3) in all cases in which the cutireaction fails the ophthalmoreaction fails, too.

Moro recommends a very simple way to provoke a tuberculinic reaction. He makes an ointment of equal parts of tuberculin and lanolin which he rubs in on the chest or abdomen for a few minutes; two hours later a diffuse redness appears followed by an eruption which may in a tuberculous individual last for 8 or 10 days.

Schmidt and Wegerer (*Med. Klinik*, No. 15, 1913) practice the cutireaction in the following manner. On a part of the skin free from hair they deposit a drop of old tuberculin, spread it out gently by rubbing with the finger, then cover the part with a plaster for 48 hours. For control a symmetrical part may be covered over with the plaster alone. These authors find this procedure preferable to Moro's, who makes an ointment with tuberculin. They have found the reaction to be constant and have even used it for getting curves of the sensibility to tuberculin during the treatment.

The ophthalmoreaction was discovered at the same time by Calmette at Lille and Wolff-Eisner at Berlin. This procedure can be of service in general diagnosis, but in eye-practice it must be rejected, because if we are dealing with a slight tubercular lesion of the cornea or of the iris it may cause grave local complications which may destroy the vision in the affected eye. In other cases in the absence of all tuberculosis the ophthalmoreaction may provoke a conjunctivitis which is difficult to cure, and especially when there is a follicular condition present, and still more when the patient is affected with ever so slight a trachoma.

In order to avoid these complications only very weak solutions of tuberculin are used. Calmette recommended 1 per cent.; it has been proposed to use only $\frac{1}{2}$ per cent. Until new and more numerous observations have been made the oculist better refrain from employing this ophthalmoreaction. On the other hand, however, the cutireaction, as well as the reaction following the hypodermic injection of tuberculin may render great services in ophthalmology.

From this we may conclude: That the discovery of the local reactions to tuberculin and their semiological employment probably ushers in a new era in medicine. These reactions constitute an important method, but they signify nothing when unsupported by the clinical findings. To confine oneself to the ophthalmoreaction or the cutireaction alone while neglecting the clinical investigations would certainly be a fault and a danger. It is neces-

sary to guard the physician against an exaggerated and too enthusiastic valuation, for admitting that the positive reaction, a truly specific one, forces us to believe in a tubercular infection, when it is negative this is no proof that there is no tuberculosis. The reaction may have been badly made. It is, also, absent in cases of advanced tuberculosis; in these cases its absence renders the prognosis very grave. It seems, therefore, that the more marked the reaction, the more we can hope for good results by a specific treatment (tuberculin or serum). This treatment when prolonged may lead to the disappearance of the reaction.

It is a more practical and less dangerous way to try the tuberculin, especially in the cases in which the clinical signs are in favor of this diagnosis; that is to begin the treatment at first with very weak doses of tuberculin T.R., or B.E., or T.B.K. One injects every two or three days progressively larger doses and after several of them a reaction will show, either locally or generally, but less violent and less dangerous.

The reaction of Bordet-Gengou by the deviation of the complement permits us now to determine the presence of the most varied microbic toxins in the blood of the patient.

From this naturally a specific therapy results which, though not infallible, is nevertheless one of the most priceless conquests of modern therapy.

How many cases of iritis, iridochoroiditis, post-operative or traumatic infections may by this means be referred to a precise specific cause and probably be cured when these laboratory methods once are generally applied; how many cases of iritis, now called rheumatic, may thus be classified as gonococcic, syphilitic or tubercular.

The value of the seroreaction by deviation of the complement we have already proved for these last two infections.

For the gonococcic infection Wendell Reber has already obtained encouraging results; but not all the authors have been as fortunate as he; they have met with very great technical difficulties. At first they had great difficulty in procuring a suitable antigen, the gonococcus which provokes an iritis or iridochoiditis is not always biologically identical with the one which has caused the primary affection, the gonorrhœa; during its stay in the organism of several years it has undergone modifications which have changed its toxins in many ways. But thanks to an extensive study of these questions we will certainly succeed in finding polyvalent antigens which will allow us to obtain reactions as exact as those which we have obtained in syphilis, etc.

Keppeler considers arthigon (polyvalent gonococcic vaccine) as an excellent diagnostic agent in latent blennorrhagia. He injects 0.02 of arthigon after which a local secretion appears which contains numerous gonococci.

There remains still a new serodiagnostic method to be described, the reaction of Abderhalden.

All serum diagnosis is based on the specificity of the disease process. It is to-day recognized that every substance foreign to the organism as soon as it enters it by the digestive tract, or by a parenteral route (subcutaneous, or intraperitoneal, or intravenous injection,) provokes the appearance of antibodies or ferments of defence which modify such a strange substance and assimilate it. These ferments or antibodies are specific for every foreign substance. If we then find the means to determine the nature of each of these ferments in the infected organism we may be able to say according to the law of specificity that we have to deal with this or that infection.

Thus it is easy to understand the serum diagnosis of Vidal, that of Wassermann, etc., and, also, Abderhalden's. In fact we know that during pregnancy some elements of the placenta enter the general circulation. If these are elements foreign to the blood, the latter must form antibodies, a ferment capable to bring about the disintegration by assimilation of this intruder. If, therefore, we can by means of physical or chemical agents exactly specific, determine the presence of such a ferment in the blood of a woman, we may be permitted to say with great probability that this woman is pregnant. This is the reaction of Abderhalden.

Cancer may be considered as the invasion of the organism by cells of a newformation, specific cells and of a nature foreign to the organism. The latter will try to resist this invasion by secreting and spreading in the circulation current defensive elements, antibodies or ferments able to fight the invader. These elements will be of a particular specificity and if we succeed in diagnosing the presence of these specific substances in the blood, we will have a priceless means of diagnosis of the cancerous nature of such a morbid process.

The reaction of Abderhalden has already permitted in ophthalmology to diagnose the cancerous or sarcomatous nature of certain tumors in the orbit or within the eyeball. The future, perhaps, holds still further surprises.

The theory of Abderhalden's reaction is as simple as that of other serum diagnoses which have already been practiced; but it will take some time till its technique will be accessible to all

clinicians. It becomes to-day more and more evident that the laboratory worker must always be made to help the clinician; since the technique of reactions and experimentations is becoming more and more delicate, it is very difficult for a single individual to fill such diverse functions.

V. The therapeutic diagnosis will often allow us to determine the nature of such and such a disease. Thus, if a doubtful affection is cured very rapidly under the influence of a mercurial treatment, the conclusion appears correct that the cause of this disease was syphilis. This is not always true, for a parenchymatous keratitis will often get well under mercurial treatment when later on symptoms show themselves which prove it to have been of a tubercular nature. It is the same with the salicylate of sodium which quickly cures acute rheumatic affections, but may also cure many other affections including sympathetic ophthalmia. Thanks to the subconjunctival injections which permit us to apply the remedy to the painful spot, we can often by this means obtain valuable diagnostic indications. Thus in a case of episcleritis we hesitate between the diagnosis of rheumatism, syphilis or tuberculosis. If a rapid cure follows one or two injections of mercury, sodium salicylate or guaiacol this will often give us the key to the ætiology. It is true syphilis can be diagnosed more exactly by the Wassermann reaction, but when this is negative it will be well to make a deep subconjunctival injection back of the eyeball of 1 cc. of a 2 per cent. guaiacol solution, the reaction is relatively slight and the pain hardly lasts 5 minutes (guaiacol is an analgesic). After two or four days, when the redness and chemosis due to the injection have disappeared, one is surprised, if the affection is tubercular, to see a marked, sometimes considerable, improvement, whether there is an episcleritis, or an iritis, or a keratitis parenchymatosa and even with an affection of the deep membranes of the eye.

This specific action of guaiacol on ocular tuberculosis is marked enough that in cases in which after a hypodermic tuberculin injection a violent ocular reaction (redness, pain, sometimes hypertension) takes place, it happens most often that this is choked off by one or two subconjunctival guaiacol injections; the pain disappears a few hours after the injection.

In two cases of optic neuritis from cerebral tumor after guaiacol injections had made the headache, the vomiting and the neuritis disappear we could assume that the encephalic lesions were of tuberculosis origin. (Darier, Arnold).

To-day, however, since we know the action of medicines better,

we must admit that aside from their specific actions in certain diseases by their physical or chemical affinities, called bacteriotrope action, arsenic and mercury in syphilis, quinine in malaria, etc., they exert often a very marked action on the elements of defense in general, a collateral, paraspecific action, which may powerfully influence phagocytosis, hæmatopoiesis and chemotaxis. In these cases we must not overlook the importance of the dosis; a remedy in a small dose may be a powerful stimulant, while in large doses it paralyzes all the organic defenses. The neutralization of the diphtheria toxin by the serum of Roux explains the disappearance of the general phenomena due to the toxin, but does not explain why the diphtheritic membranes disappear so quickly. In fact, the bacilli are not destroyed by the antitoxin. If their vitality and their development are reduced that is because the serum causes in the organism a general reaction which ends by killing the microbes themselves. This latter paraspecific or collateral action explains the numerous successes which have been obtained in a large number of infections perfectly foreign to diphtheritis by the serum of Roux (paraspecific serum therapy).

Symptomatic medication.—If it is necessary to base one's therapy on a precise ætiological diagnosis, it, also, happens often that the clinician finds himself in the presence of such a symptom complex, that, before all treatment, it is indicated to prevent grave accidents which might come on as a complication of the violence of the inflammatory phenomena. In these cases the paraspecific serum therapy will allow us to remove the most threatening symptoms and then to establish a rational therapy.

Sometimes also in the presence of violent pains suffered by the patient, we may be obliged to have recourse to local anæsthetics or general analgesics (aspirin, pyramidon, etc.), and sometimes even to injections of morphin. Thanks to dionin we can in many cases avoid the injections of morphin by quieting the pains by local applications, not for a few minutes, as cocain does, but for hours and even definitively. Finally, if the element of pain discloses nothing but an inflammatory phlegmasia, paraspecific serum therapy will relieve it in a few hours in a much more lasting manner than morphin would do.

But the pain may also be due to an increase of the intraocular tension, then if dionin has remained without effect, only a puncture of the cornea or the sclerotic will give relief.

Blood-letting, derivatives, etc., also have their indications. These we will speak of later on.

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

President, Mr. Priestley Smith, F.R.C.S.

Meeting of June 14, 1916.

Case of Gunshot Wound Involving Visual Centre, with Visual Disorientation.—By Lewis R. Yealland, M.D. (Communicated by Leslie Paton, F.R.C.S.)

Private M., aged 31, a maltster by trade, was admitted to the National Hospital, Queen Square, on February 13, 1916, with a history of a perforating bullet wound of the head. Immediately after being put to bed he suffered from a genuine epileptic seizure, but a recurrence has not been observed since. For several hours after the attack he was drowsy and inaccessible.

On examination he was found to have a right hemiplegia with increased reflexes and a plantar response extensor on that side. There were also present various motor and sensory disturbances which have more or less remained, but the hemiplegic condition has since improved considerably, the reflexes now being about normal on the two sides and the right plantar response of the flexor type. Power has returned to the right leg and he can now walk fairly well, but the movement of the right upper limb is still markedly impaired. The left eye appears to stare while the right eye appears normal. There is a left hemianopia. The visual fields are difficult to examine in view of his inability to keep the eye on the fixation point. Mr. Leslie Paton has carefully examined the fields, both of which show marked contraction. All ocular movements are well performed, there being no nystagmus or squint present. The disk edges are quite clear, and there is no evidence of papillœdema. When he is asked to open the eyes the left half of the forehead wrinkles unduly and in ordinary expressional movements there is flatness of the right side of the face. The expression is stereotyped. The tongue protruded straight and there is no deviation of the palate. Articulation is slow and monotonous, the speech is somewhat nasal. Hearing and taste are unimpaired. It should be mentioned that the patient is right-handed. Examination of the motor system shows weakness on the right side of the body. When he holds

out the right hand it falls away and he is apparently unconscious of its movement. There is no limitation of movement, but the general weakness, which is largely due to sensory loss, tends to hinder co-ordinate purposive acts. There is a fine rhythmic, but not regular, tremor frequently developed in the right hand which does not present itself in action. The fingers of the right hand tend to claw or to extend irregularly in the exercise of any action that requires force. The left arm is slightly flexed and adducted. Fine tremors such as are already described in the right are present in the left. Tremors develop chiefly when he sits up. In the movements of the left leg it is observed that there are no tremors except on completion of an act. On attempting to maintain an attitude the limb becomes tremulous. Movements of the right leg are inco-ordinate owing to sensory loss. On standing he places the right foot irregularly on the floor and immediately after doing so relieves that side of the weight. When told to get into bed and lie down he falls transversely across the bed and has much difficulty in righting himself to get into bed properly. Sensation: There is sensory loss in the right hand and right leg. In the right hand he misses some contact with cotton-wool. There is also present a relative anaesthesia to pinprick and hot and cold test tubes. Sensory loss of a like nature occurs in the right leg from the knee downwards. There is complete loss of sense of position and appreciation of passive movements in the right arm and leg. There is no appreciation of size and shape in the right hand. Compass test: The left hand gives a perfectly good reading with 1 cm.; the right hand, however, is quite hopeless at 5 cm. to $7\frac{1}{2}$ cm. The sole of the left foot shows no disturbance at $3\frac{1}{2}$ cm., but in the right there is a defect at 10 cm. to $12\frac{1}{2}$ cm. In view of his condition it is impossible to elicit satisfactorily any tests for localization.

The wound of entry is quite obvious, as there is a large pulsating mass situated 6 cm. above and 4 cm. to the right of the inion. The measurements of the wound are 7 cm. in its largest diameter, which is horizontal, and 4 cm. in its greatest vertical diameter. No fragments remain in the brain and the edges of the bone are smooth. The exit is to the left, 16 cm. above and in front of the inion and 5 cm. to the left, about half way between the tip of the left ear and a line drawn from the nasion to the inion. It has the appearance of a clean wound with linear fissures radiating from it about 2 cm. in diameter.

Various tests were performed to demonstrate the visual dis-

orientation which is manifested in this patient. In spite of the fact of his seeing objects he is unable to tell correctly their relation in space, that is when two articles are placed in front of him he is unable to tell correctly which is to the right or left, which is higher, etc., but as a general rule the object to the left of him appears to be nearer to him. Objects remain but a moment in his vision.

Apraxia is also present to some extent, that is he is unable to perform certain purposive acts, in spite of the fact of there being no motor or sensory loss or inco-ordination in the left arm.

Mr. Leslie Paton: I asked Dr. Yealland to bring this case forward, especially as a very interesting article on a case of visual apraxia was published in the *British Medical Journal* on March 25 this year, reported by Captain Smith and Lieutenant-Colonel Gordon Holmes. In that case there was a similar loss of orientation, and as this type of case has not hitherto been very common, I thought members would be interested in it. To enter into all the details concerning this particular patient would take a long time though not so long as the elucidation of all the details took. His power of response to any question is far from rapid: even taking the visual fields is an afternoon's work. A very obvious condition which he has is loss of spatial perception. Yet there is no agnosia: he can tell at once the name of any object held up. If one holds up a cup and a saucer, though there may be a difference of half a metre between them in their distance from him, he is quite unable to appreciate it. Only recently, in a series of tests which we tried with him, we found that in the great majority of cases he called that object the nearer which happened to be on his left. He has left hemianopsia, that is to say, he is blind on the left side. During this series of tests when he mostly said the nearer objects were on his left, we varied the distances of the objects a good deal. Dr. Yealland tells me he has again tested him in the same way, and again he mostly said the nearer object was on his left. When the objects to be tested were lying on a table in front of him and seeing them required a slight downward movement of the eyes, I thought his answers were more accurate than in the previous tests. Indeed, he seems to be becoming more accurate in his judgments, though he still makes gross errors. In the course of the various tests to which he has been subjected he seems to be re-educating himself in some respects. For instance, he has become more accurate in placing coins on the top of one another.

That, however, is partly due to the fact that now when he is asked to do an action he feels the position of the objects: he feels for the penny rather than tries to see it, so that it is not because his visual orientation is improving, but because, knowing his visual orientation is bad, he tries to compensate for it by his feeling which is good. The movement of his left hand is good, his right hand is hemiplegic. His eyes have perfectly good movement. I thought at first that he had defective movement to the left and that the increased nervous effort to look to the left might be the cause of his false projection, but that is not so. The lesion is, I think, fairly definite. What has taken place is complete destruction of the right occipital cortex. The whole visuo-sensory cortex on the right side has been destroyed; the left visuo-sensory cortex has escaped fairly well. The bullet has passed at the top of the corpus callosum and fairly high up on the left side, just on a level with the top of his ear. The result is, that there has been almost complete severance of the superior longitudinal commissural fibres—those which connect the visuo-sensory tracts with the frontal lobe and front parts of the parietal lobe have been cut through, and there is a loss of that communication on which his power of moving himself in space, and of projecting things into space, seems to depend. So it has evidently been a lesion missing the internal capsule. There may be some fibres of the optic radiations cut through, though there cannot be many damaged as his field of vision is fairly good on the side which is not hemianopic. It is difficult to be sure that the fields have been properly taken, but they seem fairly good. It is difficult to say anything about prognosis. He is certainly improving. If an object is placed in front of him he may see it, but he goes walking straight on. Since coming to this meeting I have heard that Lieutenant-Colonel Holmes has seen a later and exactly similar case.

Case of Mikulicz's Disease.—By G. H. Pooley, F.R.C.S. (Demonstrated by A. W. Ormond, Captain R.A.M.C.)

R. A., male, aged 58, gardener. First seen on January 26, 1916; sent by Dr. Lind Walker, of Doncaster.

History: He had some eye trouble a year ago, which got well under treatment with a lotion. Eyes well in July last; since then the condition has gradually developed; no pain, he feels drowsy.

Present condition: Marked swelling of both lids of both eyes, with some proptosis of the eyeballs, most marked on the left

side; limitation of movements of eyes in all directions. Vision: Right 6/18, left less than 6/60; no improvement with glasses. Right pupil active, left sluggish to light. There is a considerable swelling of the submaxillary gland on each side; the left preauricular gland is enlarged. The masses in the eyelids are firm to touch, and mobile; they encroach on the space between the conjunctiva and the left eyeball above. His temperature is 100 degrees F.

February 6, 1916: Operation on left orbit; growth removed as freely as possible. It was necessary to dissect out all the muscles from the growth which filled in all the lymph spaces in the orbit. It was very dense near the apex of the orbit. It was difficult to get away the growth, although it was not adherent to the other tissues. Recovery smooth. Vision of the left eye before operation=fingers.

April 14, 1916: Some ocular movement is returning. Vision: before operation = fingers.

May 9: Right 6/18, left 6/36.

May 30: Right 6/18 partly, left 6/18.

June 14. Right 6/36, left with + 1 cylinder 120 = 6/24.

There is some ptosis of his left upper lid, which is improving; ocular movements are limited, but are improving. There was marked improvement in his condition while in hospital; the swelling of the right orbit subsided considerably. He was, and is still, being treated with sodium cacodylate. Since he left the hospital the condition of his right eye has become worse. There is now some return of the new tissue on the left side, principally under the ocular conjunctiva. The operation included turning out the outer wall of the orbit, and the resulting scar is quite free from any invasion.

His blood was counted, and the findings were: Red cells, 5,400,000; white cells, 15,000; hæmoglobin, 10 per cent. A differential count was being made, but the physician who was doing it was sent abroad on army work.

Professor J. S. C. Douglas, of the Sheffield University, has kindly examined the material, which shows the microscopical appearance of a small round-celled sarcoma.

A blood count made at Guy's Hospital gave the following result: Leucocytes, 13,600: of which in a count of 300 cells there were found to be: polymorphonuclears, 72 per cent.; eosinophiles, 0.3 per cent.; lymphocytes, 19.6 per cent.; hyalines, 7.6 per cent.; basophiles, 0.3 per cent.

DISCUSSION.

Mr. Leslie Paton: Members may remember that about eighteen months ago I showed a case of this so-called Mikulicz's disease in a woman, very similar to this case. She had the same involvement of the upper lid as in this case, the same protrusion of the eyes, but she had not the same involvement of the lower lids as this man has. She had very marked enlargement of the submaxillary glands, and her palatal glands were also affected, much more markedly so than in this case. I showed specimens of my patient's blood, which might well have passed as typically that of lymphatic leukæmia. The further history of that lady was, that I removed the glands from the upper lid, but I was too late to save the sight of the right eye; members will remember that the cornea of that eye had been very much broken down by exposure. I saved the right eye, but not its sight. The left eye we saved, and the sight of it also. She improved very considerably while under treatment in the hospital, but, unfortunately, she died four months afterwards of some different disease, when a considerable number of glands which were not palpable during life were found to be affected. The cells infiltrating these glands were very similar in nature to those in the blood. Had I known that this case was to be shown to-night, I should have brought my photographs and blood specimens. The reason I discuss the case is to ask the question whether one is justified in separating this type of disease and calling it by the name of Mikulicz's disease, because the investigation which has been made into the condition has pointed to it belonging to the class of lymphatic leukæmias. By giving it this special name we are apt to be misled in our judgment and as to the appropriate treatment. I do not think it should be regarded as a special entity, and I would suggest to Mr. Pooley that it is desirable to get rid of those affected glands; it is easy to do so. In my case, of which I have spoken, the orbital glands shelled out very easily indeed, and the improvement in her appearance was immediate and marked.

Lieutenant-Colonel Elliot: When Mr. Paton showed the case he has referred to, he quoted a case of mine of Mikulicz's disease. I can confirm one of the points made by Mr. Paton—viz., the remarkably easy way in which the glands shelled out. In my case, after removal of the large orbital glands, the other glands in the head and neck very distinctly diminished in size—the submaxillary, the parotid and the sublingual glands. Mr. Paton

appears to think that cases of Mikulicz's disease should not be regarded as a clinical entity. I should like to submit a side of the question against that view: (1) all the cases described by Mikulicz and those which have since been described by others have started in one set of glands, in connection with preceding trouble in a mucous membrane; in my case it started in the conjunctiva: (2) as I have said, the removal of the offending glands causes marked improvement in the remaining glands; and (3) the general health of the patient does not suffer. I do not think that the same can be said to be the rule in lymphadenomatous cases.

(Concluded in December issue.)

CORRESPONDENCE.

November 1st, 1916.

Dr. A. Alt,
St. Louis, Mo.

Dear Sir:

The San Francisco County Medical Society has extended an invitation to the American Academy of Ophthalmology and Oto-Laryngology to hold their 1917 meeting in San Francisco. We are enclosing herewith a copy of the invitation.

San Francisco's experience in entertaining nearly one thousand conventions in the past few years, assures the convention being taken care of in every detail.

Practically every important convention has met on the Pacific Coast with the exception of the American Academy of Ophthalmology and Oto-Laryngology.

Nineteen Seventeen should be the psychological year for the convention to be held on the Pacific Coast.

We are highly desirous of having your co-operation in securing the 1917 meeting for San Francisco, and we sincerely hope the Academy will accept our invitation and give us the opportunity of welcoming you.

Yours very truly,

RENE BINE, M.D., Sec'y,
San Francisco County Medical Society.

TWENTY-FIRST MEETING OF THE AMERICAN
ACADEMY OF OPHTHALMOLOGY AND OTO-
LARYNGOLOGY.

December 11th, 12th, and 13th, Memphis, Tenn.

Preliminary Program, Ophthalmic Section.

1. Dr. Juan Santos Fernandez, Havana, Cuba.—“Cataract Operation in Spain and Latin-American Countries.”
2. Dr. W. A. Fisher, Chicago, Ill.—“A New Method of Acquiring Operative Ophthalmic Technique.”
3. Dr. J. W. Millette, Dayton, Ohio.—“Treatment Following Intra-Capsular Operation for Cataract.”
4. Dr. F. P. Calhoun, Atlanta, Ga.—“Visual Field in Pellagra.”
5. Dr. G. W. MacKenzie, Philadelphia, Pa.—“Permanent Occlusion of the Superior Branches of the Central Artery Probably Due to Thrombosis of the Central Vein of the Retina.”
6. Dr. Hiram Woods, Baltimore, Md.—“Some Phases of Ocular Tuberculosis Illustrated by Five Cases.”
7. Dr. Frank R. Spencer, Boulder, Col.—“Tuberculosis of the Retinal Vessels.”
8. Dr. Edward Jackson, Denver, Col.—“Practical Value and Limitations of the Tonometer.”
9. Dr. T. W. Moore, Huntington, W. Va.—“The Advantages of the Bishop Harmon Tucking Operation.”
10. Dr. Robert Scott Lamb, Washington, D.C.—“The Eye and Internal Secretory System.”
11. Dr. Wm. F. Hardy, St. Louis, Mo.—“Renal Choked Disc.”
12. Dr. John Green, Jr., St. Louis, Mo.—“Scleral Trephining in Detachment of Retina.”
13. Dr. Geo. F. Suker, Chicago, Ill.—“Surgical Technique in Excision of the Tarsus for Trachoma.”
14. Dr. Wendell Reber, Philadelphia, Pa.—“Ring Scotoma from the Standpoint of Optic Nerve Disease.”
15. Dr. J. Ellis Jennings, St. Louis, Mo.—“Demonstration of the Jennings Self-Recording Test for the Detection of Color Blindness.”
16. Dr. H. V. Dutrow, Dayton, Ohio.—“Report of a Case of Parinaud's Conjunctivitis.”

17. Dr. C. B. Fulkerson, Kalamazoo, Mich.—“Case Reports. Lantern Slide Demonstration of Roentgenographic Findings of Blind Dental Abscesses, Causing Accommodative Asthenopia. An Unusually Large Myxofibroma Removed from the Nasal Passage.”

18. Dr. H. S. Gradle, Chicago, Ill.—“Glaucoma Simplex without Perceptible Rise in Tension.”

19. Dr. M. Feingold, New Orleans, La.—“Congenital Partial Absence of Retinal Pigment Layer of Iris in Both Eyes.”

20. Dr. Wm. H. Crisp, Denver, Col.—Title to be announced.

21. Dr. John R. Newcomb, Indianapolis, Md.—“The Correction of the Presbyopic Eye.”

ABSTRACTS FROM MEDICAL LITERATURE.

BY W. F. HARDY, M.D.,

ST. LOUIS, MO.

HERPES CORNEA “FEBRILIS”.

Theobald has a short but very interesting paper on the subject of herpes corneae febrilis in the *New York Medical Journal*, August 5, 1916. He has met with an uncommonly large number of cases and attributes this to his invariable habit of testing the sensibility of the cornea in every case of superficial keratitis in which the ætiology is in doubt. He states that the most characteristic sign of herpetic keratitis is corneal hypæsthesia. The term herpetic keratitis is made to include in a broad sense, neuropathic keratitis, the post malarial keratitis of Kipp, and the dendritic keratitis of Emmert. Objection is raised to the qualifying term, febrilis. Corneal herpes, excepting the post-malarial cases, occurs more often than not without assignable cause. The corneal hypæsthesia is rarely confined to the infiltrated or ulcerated areas. Characteristic signs and symptoms of herpetic keratitis are unilaterality, the diffuse and irregular form of the corneal opacities, sometimes of the dendritic type, but more often showing a map-like appearance; the persistence of the opacities even though the substantia propria is seldom

deeply involved, obstinacy of the disease and its tendency to recurrence. Theobald has not found severe pain a usual symptom. He then discusses the physiology of the ciliary ganglion giving the views of various investigators, being himself convinced that the fault in herpetic keratitis is the result of a primary lesion situated in the ciliary ganglion. This will explain the corneal hypæsthesia. Herpes of the cornea is a relatively frequent occurrence, whereas herpes zoster ophthalmicus is a rare affection and is known to be due to disease of the Gasserian ganglion. If the primary lesion in herpes of the cornea be in the Gasserian ganglion it is difficult to explain why the peripheral manifestations should be confined to the cornea and why this type of lesion should occur more frequently than herpes zoster ophthalmicus. A primary lesion of the ciliary nerves is rejected as a probable hypothesis.

As regards treatment Theobald has found holocain, atropin and quite frequently the supplementary use of dionin, beneficial. Holocain is given preference and at times used in conjunction with atropia. Confidence is placed in constitutional remedies, chiefly quinine, given to the point of cinchonism, and potassium iodide. Arsenic has not been found as efficacious as quinine and iodide of potassium. Attention is called to the slow course of the disease, of which the patient should be informed. Improvement is heralded by a diminution of the ciliary irritation—the photophobia, lacrimation and blepharospasm—and a lessening of the conjunctival injection; the lost tissue is restored, the epithelium reformed, the opacities disappear sometimes incompletely and hypæsthesia vanishes. This latter Theobald believes is in some instances incomplete.

A DOMINANT MENDELIAN INHERITANCE, PRINCIPAL FACTOR IN OCCURRENCE OF CATARACT AND ECTOPIA LENTIS.

Buxton (*Southern Med. Jour.*, October, 1916) discusses to quite an extent the Mendelian law of heredity. The law of alternative inheritance consists of the following principles: (a) Unit characters, (b) dominance, (c) every sexually produced individual is a double being. Of particular interest to us in the behavior of cataract and ectopia lentis, relative to Mendel's law. In ectopia lentis there is found a direct inheritance of a weakened or structural deficiency of the suspensory ligament.

From a Mendelian point of view pre-senile cataract and ectopia lentis are not pathological conditions, but are deviations from the normal through failure of certain determiners to operate to make a normal eye. Congenital cataract and ectopia lentis are due to a dominant factor in the germ plasm of at least one parent. These conditions do not arise de novo. Ectopia lentis is found less frequently than cataract. Contrary to the visual history of ectopia lentis, cataract may and often does skip a generation to reappear in later generations of the same strain. Pre-senile cataracts are almost uniformly due to heredity. Buxton states that the examination of the family tree in the upward direction gives us more correct data than in the downward direction. Although hereditary cataract may appear at any age, yet age itself is a direct factor in too many cases to be ignored. From the evidence at hand the conclusion is drawn that the determining unit in the germ plasm alone produces these diseases in definite form, and at definite times subject to yet unknown environmental modifications.

LATE INFECTION FOLLOWING CORNEOSCLERAL TREPHINE OPERATION FOR GLAUCOMA.

Two more cases of late infection are added to the growing list of catastrophes following the Elliott operation, by Broder (*Medical Record*, October 21, 1916). In the one case infection occurred four years after operation and involved the good eye, the resulting vision being but 5/200. The second case was in a patient with but one eye. Infection took place 3 years after the trephining. The sequence of events were an acute conjunctivitis, infection of the bleb, hypopyon and a severe iridocyclitis. At the time of discharge from the hospital the inflammation had subsided but vision was so reduced that the patient was barely able to find his way about. The prognosis concerning the ultimate outcome in trephining should be very guarded. Broder thinks this procedure should be used only as a last resort. In addition to late infection other pathological conditions follow the trephine operation, such as opacification of the lens and closure of the trephine hole by proliferation of connective tissue, or by being blocked by iris, ciliary body, suspensory ligament or lens. In common with many others Broder favors iridectomy for acute and subacute glaucoma and for glaucoma simplex he believes in persisting in the use of miotics as long as the intra-

ocular tension is controlled and the visual field and central vision do not decline. When these measures fail the author inclines to a broad iridectomy reserving trephining for those cases in which, on account of far advanced structural changes in the filtration area, contraindicate an iridectomy. Trephining then is the only course open where an iridectomy has been done previously. It should be performed over the site of the coloboma.

As a protection against possible later infection, the conjunctival flap should be as large as possible and thick. All these points have been made many times before, but repetition and emphasis are not out of place.

THE HYPOTHYROIDIC EYE.

In contradistinction to the hyperthyroidic, the eye of exophthalmic goitre, Jacobson (*Medical Times*, July, 1916) describes the hypothyroidic eye. Such an eye is dull, seemingly small, apparently sunken, expressionless, featurally insignificant according to the degree of deficiency. The phenomenon is said to be more than a mere matter of swollen lids. In cretinism the eyes appear small and after the myxœdema clears up the eyes are left sunken. Whether this sunken condition is due to the absorption of the orbital infiltration permitting later recession of the eyeball or whether in high degrees of hypothyroidism like myxœdema and cretinism there is actual euophthalmos is an open question. Jacobson states that the hypothyroidic eye picture has not been specifically discussed in the literature in the light of a complementary and antithetic clinical phenomenon in the thyroidal pathogeny. By inference we should encounter in high degrees of hypothyroidism, a kind of inversion of the familiar signs of exophthalmos. In place of the Graefe sign there is found proptosis palpebræ; in place of the Dalrymple sign (Stellwag's) there takes place a narrowing of the palpebral fissure. Instead of the staring eye of Graves' disease, there is more or less recession. Jacobson is evidently not an ophthalmologist but has studied the question from the internist's point of view. The remainder of his article deals with a study of Napoleon, looking upon that historically monumental figure as one afflicted with hypothyroidism. Napoleon is credited with possessing the hypothyroidic eye. It is interesting he states to think what effect a little thyroid extract might have had upon Napoleon's remaking of the map and institutions of Europe.